

**WHAT IS CLAIMED IS:**

1. A substrate layout method for reducing cross talk of adjacent signals, the substrate having a plurality of signal pads formed on a die, a ring around said die, and a plurality of signal fingers around said ring, the substrate layout method comprising:
  - 4 forming a guard pad between two adjacent signal pads;
  - 5 forming a guard finger between two adjacent signal fingers;
  - 6 forming a first bonding wire to connect said guard pad to said ring;
  - 7 forming a second bonding wire to connect said ring to said guard finger; and
  - 8 forming a guard trace to connect said guard finger to a via at the edge of the substrate, and connecting said guard trace to a short-circuiting place through said via.
- 1 2. The substrate layout method as claimed in claim 1, wherein the substrate is a ball grid array.
- 1 3. The substrate layout method as claimed in claim 1, wherein said guard pad is selected from the group consisting of a power and ground pad.
- 1 4. The substrate layout method as claimed in claim 1, wherein said ring is selected from the group consisting of a power and ground ring.
- 1 5. The substrate layout method as claimed in claim 1, wherein said short-circuiting place is selected from the group consisting of a power and ground plane of the substrate.
- 1 6. The substrate layout method as claimed in claim 1, wherein said short-circuiting place is selected from the group consisting of a power and ground solder ball under the substrate.
- 1 7. A substrate layout structure for reducing cross talk of adjacent signals, the substrate having a plurality of signal pads formed on a die, a ring around said die, and a plurality of signal fingers around said ring, the substrate layout structure comprising:
  - 4 a guard pad formed between two adjacent signal pads;
  - 5 a guard finger formed between two adjacent signal fingers;
  - 6 a first bonding wire for connecting said guard pad to said ring;
  - 7 a second bonding wire for connecting said ring to said guard finger; and
  - 8 a guard trace for connecting said guard finger to a via at the edge of the substrate, and connecting said guard trace to a short-circuiting place through said via.

1       8. The substrate layout method as claimed in claim 7, wherein the substrate is a ball  
2       grid array.

1       9. The substrate layout method as claimed in claim 7, wherein said guard pad is  
2       selected from the group consisting of a power and ground pad.

1       10. The substrate layout method as claimed in claim 7, wherein said ring is selected  
2       from the group consisting of a power and ground ring.

1       11. The substrate layout method as claimed in claim 7, wherein said short-circuiting  
2       place is selected from the group consisting of a power and ground plane of the substrate.

1       12. The substrate layout method as claimed in claim 7, wherein said  
2       short-circuiting place is selected from the group consisting of a power and ground solder  
3       ball under the substrate.

1       13. A substrate layout method for reducing cross talk of adjacent signals, the substrate  
2       having a plurality of signal pads formed on a die, a ring around said die, and a plurality of  
3       signal fingers around said ring, the substrate layout method comprising:

4           forming a guard finger between two adjacent signal fingers;

5           forming a bonding wire to connect said ring to said guard finger; and

6           forming a guard trace to connect said guard finger to a via at the edge of the  
7       substrate, and connecting said guard trace to a short-circuiting place through said via.

1       14. The substrate layout method as claimed in claim 13, wherein said ring is selected  
2       from the group consisting of a power and ground ring.

1       15. The substrate layout method as claimed in claim 13, wherein said short-circuiting  
2       place is a power and ground plane of the substrate.

1       16. The substrate layout method as claimed in claim 13, wherein said  
2       short-circuiting place is a power and ground solder ball under the substrate.

1       17. A substrate layout structure for reducing cross talk of adjacent signals, the substrate  
2       having a plurality of signal pads formed on a die, a ring around said die, and a plurality of  
3       signal fingers around said ring, the substrate layout structure comprising:

4           a guard finger formed between two adjacent signal fingers;

5           a bonding wire for connecting said ring to said guard finger; and

a guard trace for connecting said guard finger to a via at the edge of the substrate, and connecting said guard trace to a short-circuiting place through said via.

18. The substrate layout method as claimed in claim 17, wherein said ring is selected from the group consisting of a power and ground ring.

19. The substrate layout method as claimed in claim 17, wherein said short-circuiting place is selected from the group consisting of a power and ground plane of the substrate.

20. The substrate layout method as claimed in claim 17, wherein said short-circuiting place is selected from the group consisting of a power and ground solder ball under the substrate.

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